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<120> Recombinant bacterial strains for the production of
natural nucleosides and modified analogues thereof

<130> 99DC26E

<140> PCT/EP99/10416

<141> 1999-12-23

<150> MI98A002792

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<170> PatentIn Ver. 2.1

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 cloned in pUC18 so to create a fusion between the
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cccgaaggga gaaaggcgga caggtatccg gtaagcggca gggtcggaac aggagagcgc 6000
acgagggagc ttccaggggg aaacgcctgg tatctttata gtctgtcgg gtttcgccac 6060
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gccagcaacg cggccttttt acggttcctg gccttttgct ggccttttgc tcacatgttc 6180
tttctgcgt tatccctga ttctgtggat aaccgtatta ccgcctttga gtgagctgat 6240
accgctcgcc gcagccgaac gaccgagcgc agcgagtcag tgagcgagga agcggaaga 6299

<210> 11
<211> 2297
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: cloning vector
derived from pUC18

<400> 11
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agctcggtag ccggggatcc tctagagtcg acctgcaggc atgcaagctt atggtgcact 120
ctcagtacaa tctgctctga tgccgcatag ttaagccagc ccgacaccc gccaacaccc 180
gctgacgcgc cctgacgggc ttgtctgctc ccggcatccg cttacagaca agctgtgacc 240
gtctccggga gctgcatgtg tcagaggttt tcaccgtcat caccgaaacg cgcgagacga 300
aagggcctcg tgatacgctt atttttatag gttaatgtca tgataataat ggtttcttag 360
acgtcagggtg gcacttttcg gggaaatgtg cgcggaaccc ctatttgttt atttttctaa 420
atacattcaa atatgtatcc gctcatgaga caataaccct gataaatgct tcaataatat 480
tgaaaaagga agagtatgag tattcaacat ttccgtgtcg cccttattcc cttttttgcg 540
gcattttgcc ttctgtttt tgctcaccga gaaacgctgg tgaaagtaaa agatgctgaa 600

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ggcgcggtat tatcccgat tgacgcggg caagagcaac tcggtcgccg catacactat 780
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atactttaga ttgatttaaa acttcatttt taatttaaaa ggatctaggt gaagatcctt 1440
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acacagccca gcttgagcg aacgacctac accgaactga gatacctaca gcgtgagcta 1920
tgagaaagcg ccacgcttcc cgaagggaga aaggcggaca ggtatccggt aagcggcagg 1980
gtcggaacag gagagcgcac gagggagctt ccagggggaa acgcttggt tctttatagt 2040

Norph11.app

cctgtcgggt ttcgccacct ctgacttgag cgtcgatttt tgtgatgctc gtcagggggg 2100
cggagcctat ggaaaaacgc cagcaacgcg gcctttttac ggttcctggc cttttgctgg 2160
ccttttgctc acatgttctt tctgcgtta tcccctgatt ctgtggataa ccgtattacc 2220
gcctttgagt gagctgatac cgctcgccgc agccgaacga ccgagcgcag cgagtcagtg 2280
agcgaggaag cggaaga 2297

<210> 12
<211> 3031
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: udp and deoD
cloned into pGM746 without upstream ptac promoter

<400> 12
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tgcagaaatg ggcgatttcg ctgacgtagt tttgatgcca ggcgaccgcg tgcgtgcgaa 180
gtatatgtct gaaactttcc ttgaagatgc ccgtgaagtg aacaacgttc gcggtatgct 240
gggcttcacc ggtacttaca aaggccgcaa aatttccgta atgggtcacg gtatgggtat 300
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ccgcgtgggt tctgtggcg cagttctgcc gcacgtaaaa ctgcgcgacg tcgttatcgg 420
tatgggtgcc tgcaccgatt ccaaagttaa ccgcatccgt tttaaagacc atgactttgc 480
cgctatcgct gaattcgaca tgggtgcgtaa cgcagtagat gcagctaaag cactgggtat 540
tgatgctcgc gtgggtaacc tgttctccgc tgacctgttc tactctccgg acggcgaaat 600
gttcgacgtg atggaaaaat acggcattct cggcgtggaa atggaagcgg ctggtatcta 660
cggcgctcgt gcagaatttg gcgcgaaagc cctgaccatc tgcaccgtat ctgaccacat 720
ccgcactcac gagcagacca ctgccgtga gcgtcagact accttcaacg acatgatcaa 780

Norph11.app

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gcttatgggtg cactctcagt acaatctgct ctgatgcgc atagttaagc cagccccgac 900
accgcgaac acccgctgac gcgcctgac gggcttgtct gctcccgga tccgcttaca 960
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aagtttactc atatatactt tagattgatt taaaacttca tttttaattt aaaaggatct 2160
aggtgaagat cctttttgat aatctcatga ccaaaatccc ttaacgtgag ttttcgttcc 2220

Norph11.app

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actgagcgtc agaccccgta gaaaagatca aaggatcttc ttgagatcct ttttttctgc 2280
gcgtaatctg ctgcttgcaa acaaaaaaac caccgctacc agcgggtggtt tgtttgccgg 2340
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gcagcagatc agtgagcgaq gaagcggaag a 3031

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<210> 13
 <211> 3128
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: deoD cloned
 downstream ptac promoter

```

<400> 13
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agctccgaca tcataacggg tctggcaaatt attctgaaat gagctgttga caattaatca 120
tcggctcgta taatgtgtgg aattgtgagc ggataacaat ttcacacagg aggatcctag 180
caggagggaa ttcttccatg gctacccac acattaatgc agaaatgggc gatttcgctg 240

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Norph11.app

acgtagtttt gatgccaggc gacccgctgc gtgcgaagta tattgctgaa actttccttg 300
aagatgcccc tgaagtgaac aacgttcgcg gtatgctggg cttcacccgt acttacaaag 360
gccgcaaaat ttccgtaatg ggtcacggtg tgggtatccc gtccctgctcc atctacacca 420
aagaactgat caccgatttc ggcgtgaaga aaattatccg cgtgggttcc tgtggcgcag 480
ttctgccgca cgtaaaaactg cgcgacgtcg ttatcggtat gggtgccctgc accgattcca 540
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aagagtatga gtattcaaca ttccgctgc gcccttattc ccttttttgc ggcattttgc 1380
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cacatgttct tctctgcgtt atccctgat tctgtggata accgtattac cgcctttgag 3060
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gcggaaga

<210> 14
<211> 3934
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: udp and deoD
cloned downstream ptac promoter

<400> 14
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agctccgaca tcataacggg tctggcaaatt attctgaaat gagctgttga caattaatca 120
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aagttaaccg catccgtttt aaagaccatg actttgccgc tatcgctgac ttcgacatgg 600
tgcgtaacgc agtagatgca gctaaagcac tgggtattga tgctcgctg ggtaacctgt 660
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agcgcagcga gtcagtgaac gaggaagcgg aaga

<210> 15

<211> 6046

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: udp and deoD
cloned downstream ptac promoter

<400> 15

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